2014 Colorado Project Highlights

Paleontology

A Denver Museum of Nature and Science crew, under a BLM Colorado paleontological resources excavation permit, worked with members of the local Garden Park Paleontology Society on excavating what is thought to be a crushed dinosaur femur. Earlier excavations have uncovered foot bones and part of a skull thought to be related to a Stegosaurus. Nearby work also has produced dinosaur eggs and eggshell and is in an area of historic dinosaur quarries dating back to the 1870's. The excavation is in the BLM Royal Gorge Field Office.

Denver Museum of Nature and Science crew works with members of the local Garden Park Paleontology Society on excavating what is thought to be a crushed dinosaur femur.

Canyons of the Ancients National Monument

Jagiellonian University's Sand Canyon-Castle Rock Community Archaeological Project: For the fourth year, Jagiellonian University travelled from Krakow, Poland to Canyons of the Ancients National Monument (CANM) in southwest Colorado to continue their research. The project is the first independent Polish archaeological project in the United States, and seeks to further our understanding of prehistoric community organization within the 13th Century Puebloan society. While the project's primary focus is on the Sand Canyon – East Rock

Canyon area of the Monument, this year's expedition also ventured a few miles outside of the area.

Working with the Monument archaeologist, the group conducted extensive electrical resistivity and ground-penetrating radar analysis of the soil deposits at the base of a petroglyph panel. Other than the petroglyphs, no cultural material had been previously located at this site. Additionally, the project's students were trained in the documentation of historic inscriptions by noted Southwestern historian Fred Blackburn. All housing during the 5-week project was arranged and paid for by the BLM, with participants staying on the campus of the Crow Canyon Archaeological Center outside of Cortez, Colorado.

Archaeological students from Jagiellonian University in Krakow, Poland digitally mapping and conducting ground-penetrating radar and electrical resistivity analysis in Canyons of the Ancients National Monument, Colorado.

Digital Architectural Documentation Project: Agency Protocol Development: Using research funding from the National Landscape Conservation System, CANM continued work on a pilot digital documentation project in partnership with the BLM's National Operations Center and the University of Colorado at Denver School of Architecture and Planning's Center of Preservation Research (CoPR). The documentation project occurred on a late Pueblo III (ca. AD 1250) site using advanced Light Detection and Ranging (LiDaR), High Definition Surveying (HDS), close-range photogrammetry, and High Dynamic Range photography (HDR) to create three-dimensional models of the site's 750 year-old architecture that will be accurate up to 0.2 millimeters.

Work continued in 2014 on the production of a written manual providing guidance for other field offices and other agency's in the management of similar prehistoric architectural resources throughout the Southwest.

Staff of the University of Colorado at Denver School of Architecture and Planning's Center of Preservation Research and the BLM's National Operations Center continued work on the development of a written protocol for conducting close-range photogrammetry and LiDaR on prehistoric architectural sites, Canyons of the Ancients National Monument, Colorado.

Monument Cultural Site Stewardship Program (MSSP): The Monument Cultural Site Stewardship Program (MSSP), administered by the BLM and a contracted administrative assistant, includes 71 prehistoric cultural sites (Ancestral Puebloan), 2 historic sites (one homestead and one unknown Anglo or Navajo structure), and 2 dual-component sites (historic and Ancestral Pueblo).

The program includes 46 site stewards each of whom mostly monitor more than one site. These volunteers contributed approximately 650 hours of time and drove 7,600 miles. At an estimated BLM volunteer value of $22.14/hour, this equates to a total of $14,391.00 for donated labor and $4,294.00 for mileage, or $249.13 per site as a savings to government.

A number of educational opportunities were provided for the Monument Site Stewardship Program volunteers this year, including:

- Pottery identification at Crow Canyon Archaeological Center
- Artifact drawing
- Rock art identification and recording
- Two field trips
- Opportunity to improve computer skills for downloading photos, completing forms, and emailing information (no Site Stewards took advantage of this)

In total, site stewards have participated in over 3,000 hours of training, lectures, and volunteer work since March of 2014, helping them all better understand the sites and landscape for which they volunteer.

Other Program Accomplishments:

- Yellow Jacket Canyon: Completed an intensive pedestrian inventory on two recently acquired parcels (~336 acres) within this significant archaeological landscape.

- Painted Hand Pueblo (5MT502) was listed on the National Register of Historic Places.

- Initiated in-house close-range photogrammetric analysis on historic and prehistoric collections from the Anasazi Heritage Center.

- Continued work on a large-scale compliance and pro-active programmatic agreement for the archaeological inventory of Kinder Morgan, Inc.'s lease area, approximately 1,500 sites being recorded within this 12,000 acre area.

Colorado River Valley Field Office

Landscape Study within two Wilderness Study Areas (WSAs) and the Upper Colorado Wild and Scenic River: Each of these projects focused on research that views human-environmental interactions at a larger, landscape-scale which will assist in making future land use decisions in the field office. When cultural resource inventory occurs on only a project-by-project basis, patterns in habitation, natural resource utilization, or site preservation may not be as clear. Landscape studies allow us to look at these factors over a larger area which may present patterns in land use or issues that may not have been visible otherwise. This not only informs us of cultural resources within areas inventoried for specific projects, but also in areas adjacent to the project area. These inventories will aid cultural resource specialists in determining what areas may contain sensitive cultural resources and what areas need additional monitoring for activities such as recreation, fuels mitigation, wildlife habitat treatment, grazing, etc.

Landscape along the Upper Colorado Wild and Scenic River.

Dominguez Escalante NCA

Public Outreach and Educational Hikes: This year approximately 34 individuals were reached with interpretive events. Interpretive events for the Dominguez Escalante NCA (DENCA) included leading two Colorado Canyons Association (CCA) rock art and history tours up Big Dominguez Canyon and an outreach event at the mouth of Big Dominguez. The BLM and CCA interpretive hikes in the Big Dominguez area outreached to 18 individuals. The outreach event at the mouth of Big Dominguez reached 14 participants from a rafting trip for elementary-aged students from Telluride, CO. During these events, students and adults learned about the past culture groups who lived in the DENCA and also about how those people

used and benefited from natural resources such as plants and animals that can still be found today in the NCA.

GeoCorps Intern and Class I Model Inventory: A GeoCorps Intern was hired through a partnership with the Geological Society of America. GeoCorps interns usually have a lot of experience in the geological sciences and GIS. Utilizing the 2013 Class I Cultural Resource Sensitivity Predictive Model for the field office and GIS information, our intern determined parcels of high, medium, and low probability to survey for Section 110 work. She and other field staff completed over 40 acres of survey this summer in the DENCA, in addition to her help with soil profiles and site protection. The inventory work is being written into a formalized report, and will be presented at the Geological Society of America's meeting this October in Vancouver, British Columbia.

Permanent fence protections to protect site from cattle grazing: To protect site deposits in a highly visited area, the DENCA cultural staff worked with recreation and range to develop a historic-looking post-and-rail fence to protect an archaeological site. Native juniper posts and pine were used with historic-style hardware that would quickly rust to look older. A hanging fence was created across a creek to prevent cows from wandering up the creek and getting onto the site.

Hanging fence across creek.

Other program accomplishments:

- The Site Steward program continues to be active in the DENCA with stewards monitoring six sites this year.

- A Level II recordation of a segment of the historic Denver and Rio Grande Narrow Gauge was completed in preparation for a future underpass project.

- Testing and data recovery occurred at the Bridgeport Siding site in preparation for a future underpass project.

- Native American coordination and consultation for the DENCA RMP continued with Field Office and NCA managers making presentations to the Ute Indian Tribe Cultural Department, the Southern Ute Indian Tribe Cultural Department, and the Ute Mountain Ute Cultural Department.

Historic bridge along the Denver &Rio Grande Narrow Gauge Railroad.

Grand Junction Field Office

Calamity Camp monitoring: Calamity Camp, a historic mining camp listed on the National Register of Historic Places, was monitored to identify preservation and restoration needs for the future, which are informing current efforts to contract with another agency to protect and preserve the site.

Site Steward Program: Site stewards identified vandalism incidents at several sites located throughout the field office. Additionally, nine sites were monitored as part of a continued effort to monitor and stabilize sites located in the Pine Ridge Fire burn area.

Education Program: Over 150 individuals were reached through community programs and presentations such as the Ute Learning Garden docent training, a geoarchaeology presentation at Colorado Mesa University, brown bag lunches, and a presentation at the Center for Independence. Additionally, Native American coordination and consultation for the field office RMP and many other projects with representatives of the three Ute tribes.

The field office also received a grant to assist in care and interpretation of BLM collections held at the Museum of Western Colorado. Work has begun to develop an internship program at the museum, to create web pages highlighting the history of Western Colorado using BLM collections, to create and sustain a summer day camp for children, and to create traveling exhibits/kits using BLM collections.

Tabeguache trail survey: As part of an effort to work with local community OHV groups, BLM began the survey and recordation of cultural resources along the Tabeguache trail. This trail is currently an OHV trail and a connector to Highway 141 is proposed. The trail is probably originally a Ute trail through the area, but more research is needed to verify this history. The field office is considering ways to interpret the trail and educate OHV users of its historical importance.

GJFO staff examine the Tabeguache Trail proposed connector.

Wagon Canyon site excavation: The report was received on the excavations as part of the Western Expansion Pipeline project. This excavation revealed deposits spanning 2000 years of occupation.

Orchard Mesa Canals No. 1 and 2: The BLM received extensive site documentation as part of the Orchard Mesa Irrigation System Improvements Project.

ARPA Rock Art Case: In 2013, the field office successfully prosecuted an ARPA rock art case in CANM which resulted in the BLM receiving reparation funds. This year, BLM started working with a partner, Colorado Canyons Association, to use these reparation funds to create a curriculum and short video for elementary school students. The aim of the project is to educate youth so that future impacts to rock art sites is reduced.

Ute Learning Garden: The field office continues to work with the Colorado State University Extension office and the three Ute Indian tribes on this award-winning outreach project.

Ute Wickiup Project: BLM and partner Dominguez Archaeological Research Group received the 2014 Governor's Award for Historic Preservation from History Colorado for the Ute Wickiup Project, an ongoing project aimed at identifying and recording Ute wickiup sites within the field office. This ongoing research project demonstrates the strong partnerships between the field office, archaeological researchers and the Ute tribes.

BLM, Dominguez Archaeological Research Group, the Northern, Southern, and Ute Mountain Ute tribes, the National Park Service, and the Forest Service receiving the Governor's Award for the Ute Wickiup Project.

Gunnison Field Office

The field office successfully partnered with the Hinsdale County Historical Society (HCHS), HistoriCorps, the Colorado Youth Corps Association, and the State Historic Fund (SHF) to complete the stabilization of the Golconda Boarding House and Compressor Shop along the Alpine Loop Scenic Byway.

The boarding house, built in 1920, is a large two-story log building that dominates the site. The building measures 98.5' long and is 18 feet wide. Currently, this is the largest remaining standing log structure on the east side of the Alpine Loop that is accessible to the public. The compressor building is located southeast of the boarding house and still contains a forge, a free standing anvil, a drill steel bit press, and an air compressor and motor. The passage of time, exposure to the harsh environment, abandonment, and neglect has all taken a toll on the stability of these impressive structures and their contents. In 1999, the Golconda Mine was successfully listed on the National Register of Historic Places.

This project will be completed in September of 2014.

Colorado Youth Corps members hard at work installing windows and chinking.

A "before" shot with HistoriCorps members, Hinsdale County Historical Society members, State Historical Fund personnel, and BLM archaeologists.

Gunnison Gorge NCA

Excavations at the Eagle Rock Shelter: The 2014 excavations began late in the spring due to unusually wet conditions which precluded access to the site. When conditions improved in June, a team of excavators arrived which included faculty and staff member volunteers from Western Wyoming College, Yale University, Lee College, the University of Pretoria (South Africa), the New Zealand Conservation Center and the Mongolia National Museum.

5000 year old yucca sandal.

Kremmling Field Office

North Park Cultural Landscape Study: This study is an on-going, archaeological research investigation about Native American occupation in North Park, Colorado. The objective is to gather scientific data regarding the earliest inhabitants of North America using cultural survey, site recordation and analysis, site testing, excavation, field and laboratory analysis, and ethnographic studies with the Northern Utes.

The 2014 field season resulted in completing mapping of rock features, including a very large and complex game drive system with multiple segments of drive walls, game blinds, and cairns. The bison drive ends in a “jump”; actually a very steep ridge-slope descent, into a spring (mire) that is surrounded by a processing and short-term living camp. Other elements of the drive system that focus on drainage swales crossing the ridge are believed to represent pronghorn and elk hunting drives similar to those that have been identified. Ridge-top temporary camp areas are marked by so-called “tipi rings” along with a number of other features were also identified as potential ritual in functions, e.g. payer circles, vision-quest u-shaped walls, an inferred astronomical alignment, and possible burial cairns.

University of Northern Colorado students documenting game drives in North Park, Colorado.

Dominquez Archaeological Research Group (DARG) Intensive Documentation of Native American Architectural Sites in Middle Park, Colorado: Twenty-nine architectural features were identified consisting of rock alignments of various sizes and complexity. Stone features included four sided polygons, L-shaped, arc shaped; oval and U-shaped vision quest features.

Podcast production at the Kremmling Cretaceous Ammonite Locality: The field office with the help of Harley Armstrong and filmed by Kenneth Schauer produced eight podcasts of the Kremmling Cretaceous Ammonite Locality (KCAL) themed “An Ocean on Top of a Mountain”. The podcast was filmed in the fall of 2014 and has been approved for placement on the BLM Colorado State Office YouTube website.

McInnis Canyon NCA

GeoCorps project: An intern was hired through GeoCorps America as part of a partnership with the Geological Society of America and assisted with documentation of Ute architectural sites.

GeoCorps intern records the remnants of a Ute architectural site.

Public education projects: Interpretive events for the MCNCA included participation in the Colorado Canyons Association McInnis Canyons Scavenger Hunt for fourth graders. This year, 188 kids and 38 adults participated in the scavenger hunt, where they learned about the past culture groups who lived in the MCNCA and also about how those people used and benefited from natural resources such as plants and animals that can still be found today in the NCA.

Other Program Accomplishments:

- BLM received the report for the Denver and Rio Grande Excelsior Train Station Assessment, an extensive mapping and testing project completed by DARG. This recording revealed numerous artifacts of Chinese ethnicity, indicating the presence of Chinese laborers at the station.

- BLM archaeologists monitored sites within the MCNCA. These sites included some near popular "front country" trails and appeared to be in good condition.

Royal Gorge Field Office

Native American stone features inventory: The inventory documented 14 new features, including six cairns, two arcs, three alignments, and three examples of a previously-unrecognized feature type. Three circular areas that had been completely cleared of rocks, in stark contrast to the surrounding area atop the ridge, were recorded. Because only 3.6 miles of the 8-mile-lomg site were reexamined during the 2014 inventory, it is likely that many more features that were missed in previous recordings are yet to be recorded.

New serpentine alignment.

Paleontology: The Denver Museum of Nature and Science (DMNS) field crew excavated a large sauropod limb bone from an area located in the Garden Park Fossil Area. The fossil was discovered by the Garden park paleontology society in 2012 and was finally excavated by the Denver Museum in 2014. The DMNS invited the local individuals that originally found the bone to help with the excavation. Two volunteers joined the DMNS excavation crew studying the microfossils associated with the formerly excavated material. They are making new discoveries about the tiny mammals that lived alongside the enormous dinosaurs that our modern day Jurassic Park is famous for.

Sauropod limb excavation.

The field office assisted the Colorado State Office with relocating a federal paleontological collection that was at risk. The Dinosaur Depot Museum closed in March 2013. The federal fossil collection that they were responsible for was moved to a temporary storage location in the hopes that the Garden Park Paleontology society (DBA Dino Depot) would find a new home. Because the group was unable to find a new home, the GPPS requested that the BLM move the

federal fossil collection to a federal repository. The BLM partnered with the City of Canon City to get the collection moved to the local Royal Gorge Regional Museum and History Center, where the fossils can be shared locally in order to foster the stewardship of our paleontological resources in Canon City.

Paleontological collection

San Luis Valley Field Office

Stone Enclosures Research and Education Project: The PaleoCultural Research Group (PCRG) Director and the Rio Grande National Forest Heritage Program Manager visited the site June 10-11 to establish a site grid and select the location of excavation units. Fieldwork began on June 23 and continued through July 2. The field crew included a total of 23 participants, who together devoted 1,184 person-hours (148 person-days) to the effort. Participants donated more than 80 percent of this time (960 person-hours or 120 person-days), worth approximately $13,440. Funding for the project was provided by a grant awarded to PCRG by the Colorado State Historical Fund.

The field crew investigated four architectural features, excavating a total of 10.5 square meters distributed among four small blocks. The excavated volume was partitioned among 36 general levels. Seven cultural features were identified. Key findings of the fieldwork included:

- The duration of the stone enclosure occupation was far longer than previously estimated;
- Each of the four investigated structures exhibits a distinct occupation history;
- The age of the structures likely is far greater than previously believed. Most or all of them likely were first constructed during the Late Archaic;
- An architectural transition, from basin houses without stone foundations to basin houses with stone foundations, occurred. This shift likely represents a change in the durability, weight, or size of the building's superstructure;
- A consistent set of techniques was used to construct the stone foundations;
- The enclosures represent a repeatedly occupied residential base camp used regularly by a small number of households.

Photo of stone enclosure.

Tres Rios Field Office

Animas Forks Townsite Stabilization, Tres Rios Field Office, San Juan County, Colorado: Animas Forks is a historic abandoned mining town in the heart of the San Juan Mountains of southwestern Colorado. Founded in 1875 at an elevation of 11,160 feet, the mining camp is a testimony to the determination and grit of Colorado's early hard rock miners. It is an icon of Colorado ghost towns and the Alpine Loop Backcountry Byway. Nine standing buildings have survived to the present day in Animas Forks. The buildings are a representative assemblage of remote expressions of late nineteenth- and early twentieth-century vernacular architecture in Colorado, some with important architectural details from contemporary styles. Two of the buildings are particularly noteworthy. One is the Duncan House, which is a two-story residence built in 1879 with a picturesque bay window, typical of the Victorian era, yet highly unusual for such a remote location at this early date. The other is the stacked-board jail, built in 1882. The buildings at Animas Forks are rare survivors' of the mining era and are a tremendous draw for the thousands of visitors that make their way to Animas Forks annually.

Stabilization work occurred on the standing buildings remaining in Animas Forks in 1979 and 1997-1998. A land exchange was finalized in 2011 that consolidated the ownership of the entire site under the BLM. The site was listed on the National Register of Historic Places the same year, and additional preservation treatments were identified in a historic structures assessment. The treatment plan included structural stabilization of the foundations, walls, floors, and roofs to preserve the buildings and address safety concerns. Additional tasks included windows and interior trim restoration, the removal of vegetation and establishment of positive drainage around the footprints of the buildings, and the installation.

For phase I of the work, BLM, in partnership with Mountain Studies Institute (MSI) and the Colorado State Historical Fund (SHF), stabilized five of the standing buildings that evidenced the most critical preservation needs. The project funding was leveraged through a grant from the SHF. Phase I was completed in FY13.

For phase II of the work, BLM, in continued partnership with MSI and SHF stabilized the remaining four standing buildings at Animas Forks. BLM project funding was augmented through a grant from the SHF. Phase II was completed in FY14.

The completion of Phase I and II stabilization will ensure the historic buildings at the site will continue to remain standing for many years to come. The structures are better protected from

the harsh Alpine weather, which is a major contributor to the deterioration of buildings in the area. The preservation efforts will also result in a safer visitor environment. While much of the work involved structural stabilization, the project also entailed a signification amount of restoration/reconstruction. The buildings are now significantly more complete than they have been in many decades, and provide visitors a much better picture of what they would have looked like during the high point of Animas Forks.

Site overview before Phase I & II Stabilization.

Post stabilization photo.